

COPY OF ALL CLAIMS

1-54. (canceled)

55. (new) A process for producing a composite comprising joining by cold or hot lamination

at least one first layer Aa) which is free of electron-conducting, electrochemically active compounds, and which comprises a mixture Ia, comprising from 1 to 100% by weight of a mix IIa consisting of

a) from 1 to 95% by weight of a solid III having a primary particle size of from 5 nm to 20 μ m

and

b) from 5 to 99% by weight of a polymeric composition IV obtained by polymerization of

b1) from 5 to 100% by weight, based on the composition IV, of a condensation product V of

α) at least one compound VI which is able to react with a carboxylic acid or a sulfonic acid or a derivative or a mixture of two or more thereof
and

β) at least 1 mol per mol of the compound VI of a carboxylic acid or sulfonic acid VII which contains at least one free-radically polymerizable functional group, or a derivative thereof or a mixture of two or more thereof

and

b2) from 0 to 95% by weight, based on the composition IV, of a further compound VIII having a mean molecular weight (number average) of at least 5000 and polyether segments in the main chain or a side chain,

at least one second layer B), which comprises an electron-conducting,
electrochemically active compound,
and
at least one bonding layer C) selected from the group consisting of a
polyethylene oxide, a polyvinyl ether, a polyacrylate, a polymethacrylate,
polyvinylpyrrolidone, a polyurethane, a wax-like (co)polyolefin, a rubber-
like material, polyisobutylene and a mixture of two or more thereof.

56. (new) The process of claim 55, wherein solid III is a basic solid.

57. (new) The process of claim 55, which comprises applying at least one bonding layer
to at least one first layer, at least one second layer, or at least one first and at
least one second layer, and subsequently joining the at least one first layer to the
at least one second layer via the at least one bonding layer.

58. (new) The process of claim 55, wherein the at least one bonding layer C) is a
material which has a melting point which is lower than that of the at least one first
layer Aa) or the at least one second layer B), or both the at least one first layer
Aa) and the at least one second layer B).

59. (new) The process of claim 55, wherein the at least one bonding layer C) comprises
a basic solid III having a primary particle size of from 5 nm to 20µm.

60. (new) The process of claim 55, wherein in case of cold lamination the joining is
carried out at room temperature or at temperatures up to 50°C.

61. (new) The process of claim 55, wherein in case of hot lamination the joining is
carried out at temperatures from 50°C to 250°C.

62. (new) A process for producing a composite comprising joining by hot or cold lamination

at least one first layer Ab) which is free of electron-conducting, electrochemically active compounds, and which comprises a mixture Ib, comprising from 1 to 100% by weight of a mix IIb consisting of

- a) from 1 to 95% by weight of a solid III having a primary particle size of from 5 nm to 20 μm
and
- b) from 5 to 99% by weight of a polymer IX obtained by polymerization of
 - b1) from 5 to 75% by weight, based on the polymer IX, of a free-radically polymerizable compound X which is not a carboxylic acid or a sulfonic acid, a derivative of compound X, or a mixture of two or more thereof
and
 - b2) from 25 to 95% by weight, based on the polymer IX, of a further compound VIII having a mean molecular weight (number average) of at least 5000 and polyether segments in the main chain or a side chain,

at least one second layer B) comprising an electron-conducting, electrochemically active compound,
and

at least one bonding layer C), selected from the group consisting of a polyethylene oxide, a polyvinyl ether, a polyacrylate, a polymethacrylate, polyvinylpyrrolidone, a polyurethane, a wax-like (co)polyolefin, a rubber-like material, polyisobutylene and a mixture of two or more thereof.

63. (new) The process of claim 62, wherein solid III is a basic solid.

64. (new) The process of claim 62, which comprises applying at least one bonding layer to at least one first layer, at least one second layer, or at least one first and at least one second layer, and subsequently joining the at least one first layer to the at least one second layer via the at least one bonding layer.
65. (new) The process of claim 62, wherein the at least one bonding layer C) is a material which has a melting point which is lower than that of the at least one first layer Aa) or the at least one second layer B), or both the at least one first layer Aa) and the at least one second layer B).
66. (new) The process of claim 62, wherein the at least one bonding layer C) comprises a basic solid III having a primary particle size of from 5 nm to 20µm.
67. (new) The process of claim 62, wherein in case of cold lamination the joining is carried out at room temperature or at temperatures up to 50°C.
68. (new) The process of claim 62, wherein in case of hot lamination the joining is carried out at temperatures from 50°C to 250°C.
69. (new) A process for producing a composite comprising joining at least one first layer Aa) which is free of electron-conducting, electrochemically active compounds, and which comprises a mixture Ia, comprising from 1 to 100% by weight of a mix IIa consisting of
- a) from 1 to 95% by weight of a solid III having a primary particle size of from 5 nm to 20 µm
and
 - b) from 5 to 99% by weight of a polymeric composition IV obtained by polymerization of
- b1) from 5 to 100% by weight, based on the composition IV, of a

condensation product V of

α) at least one compound VI which is able to react with a carboxylic acid or a sulfonic acid or a derivative or a mixture of two or more thereof
and

β) at least 1 mol per mol of the compound VI of a carboxylic acid or sulfonic acid VII which contains at least one free-radically polymerizable functional group, or a derivative thereof or a mixture of two or more thereof

and

b2) from 0 to 95% by weight, based on the composition IV, of a further compound VIII having a mean molecular weight (number average) of at least 5000 and polyether segments in the main chain or a side chain

and

at least one second layer B) comprising an electron-conducting, electrochemically active compound,

wherein the at least one first layer and the at least one second layer are joined to one another by one of the two methods V1 or V2:

V1) lamination of the at least one first layer with the at least one second layer under the action of heat or pressure or under the action of heat and pressure

or

V2) corona treatment of the at least one first layer, the at least one second layer, or the at least one first layer and the at least one second layer, and subsequent bringing together of the corona-treated at least one first layer with the corona-treated or untreated at least one second layer, or the at least one untreated first layer with the corona-treated at least one second

layer.

70. (new) The process of claim 69, which comprises subjecting the at least one first layer or the at least one second layer or the at least one first layer and the at least one second layer to a corona treatment and subsequently joining the at least one first corona-treated layer to the corona-treated or untreated at least one second.

71. (new) A process for producing a composite comprising
at least one first layer Ab) which is free of electron-conducting, electrochemically active compounds, and which comprises a mixture Ib, comprising from 1 to 100% by weight of a mix IIb consisting of

- a) from 1 to 95% by weight of a solid III having a primary particle size of from 5 nm to 20 μ m
and
- b) from 5 to 99% by weight of a polymer IX obtained by polymerization of
 - b1) from 5 to 75% by weight, based on the polymer IX, of a free-radically polymerizable compound X which is not a carboxylic acid or a sulfonic acid, a derivative of compound X, or a mixture of two or more thereof
and
 - b2) from 25 to 95% by weight, based on the polymer IX, of a further compound VIII having a mean molecular weight (number average) of at least 5000 and polyether segments in the main chain or a side chain
and

at least one second layer B) comprising an electron-conducting, electrochemically active compound,

wherein the first layer or layers and the second layer or layers are joined to one another by one of the two methods V1 or V2:

- V1) lamination of the at least one first layer with the at least one second layer under the action of heat or pressure or under the action of heat and pressure
or
- V2) corona treatment of the at least one first layer, the at least one second layer, or the at least one first layer and the at least one second layer, and subsequent bringing together of the corona-treated at least one first layer with the corona-treated or untreated at least one second layer, or the at least one untreated first layer with the corona-treated at least one second layer.

72. (new) The process of claim 71, which comprises subjecting the at least one first layer or the at least one second layer or the at least one first layer and the at least one second layer to a corona treatment and subsequently joining the at least one first corona-treated layer to the corona-treated or untreated at least one second.